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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/421,043 10/20/99 MASUDA

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020457 IM52/1023
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EXAMINER

ALEJANDRO MULERO, L

ART UNIT

PAPER NUMBER

1763

DATE MAILED:

10/23/01

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/421,043

Applicant(s)

MASUDA ET AL.

Examiner

Luz L. Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 28 (second occurrence) and 29-30 have been renumbered as 29-31.

Information Disclosure Statement

Submitting copies of documents (references) and listing them in the remarks of an amendment is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

With the amendment filed on 8/3/01, and as stated by the applicant in the remarks of such amendment, copies of four documents that had been cited in an IDS of a copending application were submitted. Since the documents were considered by the examiner, they have been listed in the enclosed PTO-892 form (Notice of References Cited). For future correspondences, if applicant wishes consideration of a document,

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the references should be listed and submitted in a PTO-1449 form (Information Disclosure Statement).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 22-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto et al., 5,843,277 in view of Shamouillan et al., EP 0 648 858 A1.

Goto et al. shows the invention as claimed including a plasma etching apparatus 100 for etching a sample 115 comprising: an etching chamber 105 having a sidewall, and an exchangeable jacket which is held inside the sidewall, the sample being disposed in said etching chamber; an evacuation system 170; an etching gas supply

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150; a plasma generator 190; and a temperature controller which circulates a heat exchanging medium through the interior of the jacket to control the temperature of the surface of the jacket in a range of 20°C-60°C (see col. 8, lines 20-36, fig. 1 and its description).

The reference does not expressly disclose that the temperature controller controls the temperature of the jacket, as to enable depositing of a coating layer on the surface of the jacket during etching. Shamouillan et al. discloses a plasma etching apparatus in which, during etching of the substrate, the chamber walls are maintained at a low temperature and the etching process operating variables are adjusted to enhance a film formation on the chamber walls. The film deposited in the chamber walls covers and entraps any free floating particulate etch by-products (particulate contaminants) in the film being formed in the walls (see the abstract; page 2, lines 1-2; page 4, lines 36-51, and page 5, lines 25-54). In view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to control the temperature of the surface of the jacket in the apparatus of Goto et al. and to adjust the operating variables of the etching process as to enhance a film formation on the chamber walls, because in such way contamination of the apparatus and the substrate being processed in the apparatus can be reduced and/or controlled, therefore the apparatus, the process performed in the apparatus and the product being produced in the apparatus are optimized.

Goto et al. and Shamouillan et al. do not expressly disclose the claimed thickness of the coating layer, but such limitation is directed to a method limitation

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instead of an apparatus limitation, and since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand, since a variety of methods can be done with the apparatus. The method limitations are viewed as intended uses that do not further limit, and therefore do not patentably distinguish the claimed invention. Moreover, such limitation is considered to involve routine optimization which has been held to be within the level of ordinary skill in the art. Therefore, one of ordinary skill in the art at the time the invention was made would have modified the apparatus of Goto et al. and Shamouillan et al. as to deposit a coating layer having the claimed thickness in order to optimize the process being performed in the apparatus.

With respect to claims 22 and 28, as stated above, Goto et al. discloses a temperature range of 20°C-60°C. Also, in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). With respect to the claimed temperature range between 0°C-19°C, Goto et al., further discloses in col. 8, lines 35-36, that wider ranges can be contemplated. Similarly, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).

With respect to claims 25 and 31, the heat exchanging medium of the reference is water (see col. 8, lines 25-26). It would have been obvious to one having ordinary

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skill in the art at the time the invention was made that water has characteristics of a refrigerant.

Claims 22-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins et al., 5,556,501 in view of Shamouillan et al., EP 0 648 858 A1.

Collins et al. shows the invention as claimed including a plasma etching apparatus 10 for etching a sample 5 comprising: an etching chamber 11 having a sidewall, and an exchangeable jacket which is held inside the sidewall, the sample being disposed in said etching chamber; an evacuation system 21; an etching gas supply; a plasma generator; and a temperature controller which circulates a heat exchanging medium through the interior of the jacket to control the temperature of the surface of the jacket in a range of 120°C to -150°C (see col. 20-line 55 to col. 21-line 24, fig. 1 and its description).

The reference does not expressly disclose that the temperature controller controls the temperature of the jacket, as to enable depositing of a coating layer on the surface of the jacket during etching. Shamouillan et al. discloses a plasma etching apparatus in which, during etching of the substrate, the chamber walls are maintained at a low temperature and the etching process operating variables are adjusted to enhance a film formation on the chamber walls. The film deposited in the chamber walls covers and entraps any free floating particulate etch by-products (particulate contaminants) in the film being formed in the walls (see the abstract; page 2, lines 1-2; page 4, lines 36-51, and page 5, lines 25-54). In view of this disclosure, it would have been obvious to

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one having ordinary skill in the art at the time the invention was made to control the temperature of the surface of the jacket in the apparatus of Collins et al. and to adjust the operating variables of the etching process as to enhance a film formation on the chamber walls, because in such way contamination of the apparatus and the substrate being processed in the apparatus can be reduced and/or controlled, therefore the apparatus, the process performed in the apparatus and the product being produced in the apparatus are optimized.

Collins et al. and Shamouillan et al. do not expressly disclose the claimed thickness of the coating layer, but such limitation is directed to a method limitation instead of an apparatus limitation, and since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand, since a variety of methods can be done with the apparatus. The method limitations are viewed as intended uses that do not further limit, and therefore do not patentably distinguish the claimed invention. Moreover, such limitation is considered to involve routine optimization while has been held to be within the level of ordinary skill in the art. Therefore, one of ordinary skill in the art at the time the invention was made would have modified the apparatus of Collins et al. and Shamouillan et al. as to deposit a coating layer having the claimed thickness in order to optimize the process being performed in the apparatus.

With respect to claims 22 and 28, as stated above, Collins et al. discloses a temperature range of 120°C to -150°C. Also, in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of

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obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

With respect to claims 25 and 31, it would have been obvious to one having ordinary skill in the art at the time the invention was made that the heat exchanging medium has characteristics of a refrigerant in order to be able to be used for such disclosed temperature range.

Response to Arguments

Applicant's arguments with respect to the newly presented claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Van Os et al., US 6,178,918 and Robson et al., US 5,874,014 disclose an apparatus similar to the instant claimed invention. Hirano et al. disclose the use of control means coupled to heat exchanging means.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 703-305-4545. The examiner can normally be reached on 5/4/9.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 703-308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3599 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



LLAM

October 20, 2001



GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700